
A New Southern Hemisphere Species of *Potentilla* (Rosaceae)

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ABSTRACT. *Potentilla tucumanensis* A. Castagnaro & M. Arias, sp. nov., from Tucumán, Argentina, is described and illustrated. *Potentilla tucumanensis* was originally determined as *P. norvegica*. The latter and *P. anserina* were the only two species of this large genus primarily of the Northern Hemisphere cited from Argentina. *Potentilla tucumanensis* is distinguished from *P. norvegica* by morphological-reproductive (flowers and achenes), anatomical (stomata), and genetic (chromosome number) characters.

The genus *Potentilla* belongs to the family Rosaceae and includes approximately 500 species of annual and perennial herbs and shrubs (Davidson, 1995), most of them from the Northern Hemisphere (Acharya-Goswami & Matfield, 1975). *Potentilla norvegica* was characterized by Linnaeus (1753) as a Scandinavian species. In 1900 Lillo found morphologically similar specimens in Tucumán (Argentina), which he identified it as *P. norvegica*. Later, Zardini (1973) cited this species from Córdoba and La Rioja, and Novara (1993) observed similar specimens in the Valle de Lerma, province of Salta, Argentina (Fig. 1). However, studies carried out by our group with recently collected material, comparison with materials from different herbaria, and an exhaustive literature search revealed that all specimens found in Argentina that were erroneously called *P. norvegica* belong to a new species designated here as *P. tucumanensis* (Fig. 2); this new species does not resemble any other European or North American species (Focke, 1888; Wolf, 1908; Rothmaler, 1959; Kalkman, 1968; Werner & Soule, 1976; Fitter et al., 1986; Ikeda & Ohba, 1993). Furthermore, the true *P. norvegica* does not occur in Argentina or at least has not yet been reported from there. The main morphological-reproductive, anatomical, and genetic differences observed between *P. tucumanensis* and the European *P. norvegica* are shown in Table 1. Despite the fact that

this plant was originally classified as *P. norvegica* because of its broad similarities to the European species, we have considered it to be novel not only for its diploid status, but also because morphological and anatomical analyses (Ikeda & Ohba, 1993; Leht, 1991) showed relevant taxonomic characters that clearly discriminate *P. tucumanensis* from *P. norvegica*. The name "tucumanensis" refers to the geographical region that in the colonial period was called "Región del Tucumán."

Potentilla tucumanensis A. Castagnaro & M. Arias, sp. nov. TYPE: Argentina. Tucumán: Dpto. Trancas, Loc. Potrero, 1500–1600 m, sunny disturbed areas, 12 Sep. 1996, D. Kirschbaum 11 (holotype, LIL 602866). Figure 2.

Herba annua erecta 10–30 cm alta. Folia trifoliolata pubescentia, basalia petiolis longis apicaliaque petiolis brevibus insidentia; foliolo terminali 6–20 mm longo, 5–15 mm lato, elliptico, profunde bidentato; venatione brochidodroma; estipulis bipartitis. Inflorescentia ex flore solitario constans; bracteolis calyculi elliptico-lanceolatis, apice attenuatis, pubescentibus, venatione reticulata. Flos 3–6 mm longus, 4–9 mm latus; sepalis triangularibus; petalis flavis, lanceolato-spathulatis, glabris, venatione dichotoma, 1.8–2.5 mm longis, 0.7–1.5 mm latis; staminibus 15 tricyclis aequalibus, filamentis filiformibus curvatis, antheris subglobosis. Achenia ochracea, reniformia; tegumento laevi, rare alato; stylo in fructu persistente, membranaceo; stigmatibus bilobis, incurvatis. Numerus chromosomatum: $2n = 2x = 14$.

Annual herb, erect, 10–30 cm high; root unbranched, vertical. Leaves 3-foliolate, pubescent with glandular and unicellular trichomes on both sides of epidermal leaves; terminal leaflet 6–20 × 5–15 mm, elliptic, deeply bidentate; basal leaves with long petioles (30–70 mm) and apical leaves with short petioles (1–30 mm); stipules bipartite; venation brochidodromous. Flower solitary, 3–6 × 4–9 mm; peduncle 5–15 mm long; epicalyx bracteoles elliptic-lanceolate with attenuate apex, 2.5–3.5 × 0.8–1.0 mm, pubescent with reticulated veins. Sepals triangular, veins reticulated, pubes-

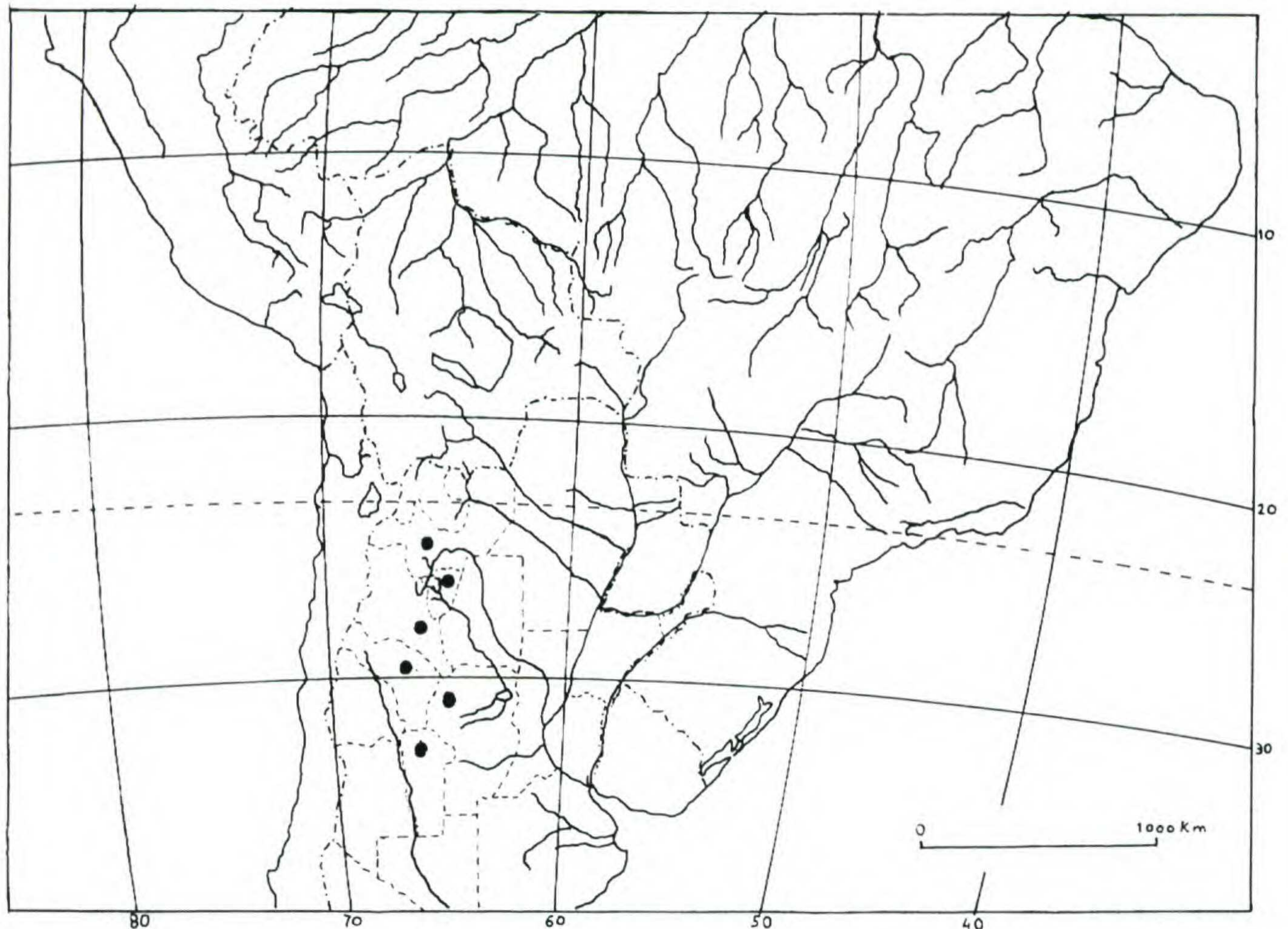


Figure 1. Distribution of *Potentilla tucumanensis* in Argentina.

Table 1. Comparison of morphological, anatomical, and genetic characters of *Potentilla tucumanensis* and *P. norvegica*.

	<i>P. tucumanensis</i>	<i>P. norvegica</i> *
Habit	Annual herb, erect, 10–30 cm long	Annual, biennial, or (rarely) short-lived perennial 20–60 cm long
Root	Simple and vertical	Simple, vertical, often thick, biennial and perennial
Leaves	3-foliolate; lower leaves on long petioles, upper ones nearly or very sessile; leaflets deeply bidentate	Lower leaves on long petioles, upper ones nearly or very sessile; each leaf consists of 3 oval, coarsely toothed leaflets
Stipules	Extended, bipartite	Extended, bipartite, split at the tip
Flowers	Solitary, yellow; 3–6 mm	Inflorescence, leafy cyme at the end of the branches, yellow; 7–10 mm
Petals	Yellow, lanceolate-spatulate; 1.8–2.5 mm long	Yellow, orbiculate; 3–5 mm long
Achenes	Reniform, with smooth coat, ochre; occasionally winged; 0.5–0.7 mm long	Ovoid or nearly round, pale brown with shallow longitudinal ridges; 0.8–1.3 mm long
Stomata apparatus	Non-contiguous stomata	Contiguous stomata**
Stomata length × width [μm]	Upper epidermis: 34.0 × 29.3 (\pm 0.8) Lower epidermis: 29.8 × 24.5 (\pm 0.8)	Upper epidermis: 28.1 × 20.4 (\pm 0.5) Lower epidermis: 25.0 × 19.9 (\pm 0.3)
Chromosome number	$2n = 2x = 14$	$2n = 10x = 70$

* *P. norvegica* L.: synonyms, *P. monspeliensis* L., *P. monspeliensis* L. var. *norvegica* (L.) Rydberg, *P. millagrana* Engelmann ex Lehmann. From Werner & Soule (1976).

** From Leht, M. (1991).

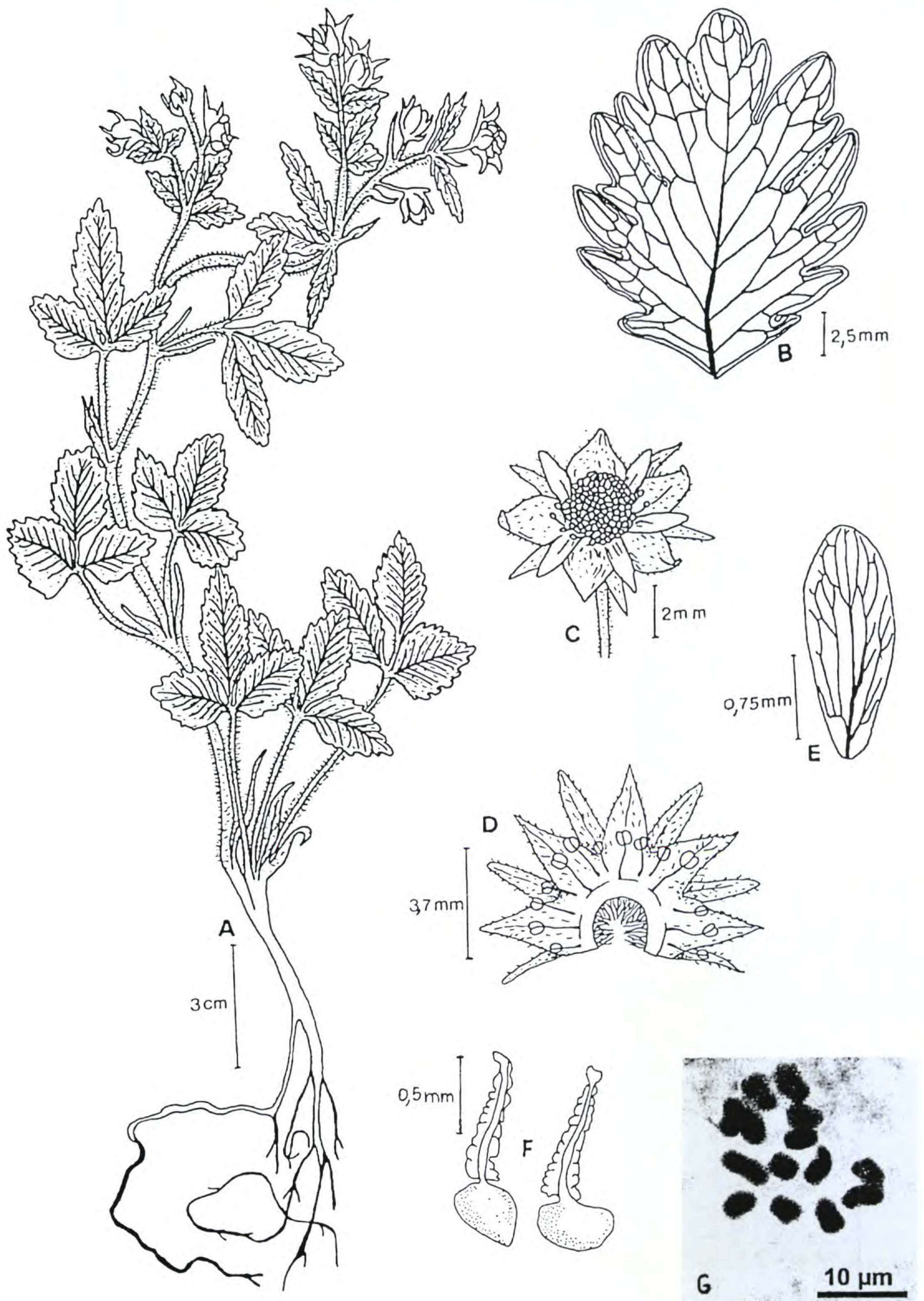


Figure 2. *Potentilla tucumanensis* A. Castagnaro & M. Arias. —A. Habit. —B. Terminal leaflet. —C. Flower. —D. Detail of stamen distribution in open flower. —E. Detail of petal. —F. Two views of achenes showing the persistent membranous style and the bent bilobulate stigma. —G. Micrography of mitotic metaphase ($2n = 2x = 14$; holotype).

cent, $3.7\text{--}5 \times 1.3\text{--}2$ mm; petals yellow, lanceolate-spatulate with dichotomous veins, glabrous, $1.8\text{--}2.5 \times 0.7\text{--}1.5$ mm; stamens 15, distributed in 3 cycles of 5 stamens each, filament curved, filiform, 0.6–1.1 mm long, anthers subglobose, 0.2–0.4 mm long. Achenes ochre, reniform, 0.5–0.7 mm long, with smooth coat, rarely winged; style persistent in fruit, membranous, 0.4 mm long; stigma bent, bilobulate. Chromosome number: $2n = 2x = 14$.

Habitat. *Potentilla tucumanensis* was found in open, sunny, disturbed, often fallow lands, near streams, corresponding to the mountainous dry Chaco phytogeographic region (Cabrera, 1976).

Paratypes. ARGENTINA. **Tucumán:** San José, 2200 m, 19 Dec. 1900, *Lillo 2625* (LIL); La Ciénega, 2600 m, 17 Apr. 1904, *Lillo 3737* (LIL); Cañada del Muñoz, 1700 m, July 1911, *Castillón 2790* (LIL); Yerba Buena, forest, 550 m, 6 Nov. 1913, *Lillo 13242* (LIL); El Potrerillo, 600 m, 22 Nov. 1913, *Monetti 14872* (LIL); Tañá del Valle, Río Blanco Creek, 2000 m, Feb. 1914, *Castillón 3505* (LIL); Parque Centenario, 450 m, 6 Nov. 1913, *Castillón 3049* (LIL); Chañar Pozo, 300 m, Oct. 1919, *Venturi 446* (LIL); Las Pavas, 2700 m, 17 Mar. 1924, *Venturi 3292* (LIL); Embarcación F.C.C.N., 450 m, 18 Dec. 1925, *Schreiter 5175* (LIL). **Salta:** Sierra de Vélez, nearby Mojotoro River, *Novara 2950* (Herb. G. Tolaba); La Caldera, Ruta 9, 1614 km, 1300–1500 m, 30 Nov. 1987, *Novara 7230* (Herb. G. Tolaba). **Córdoba:** Villa Mercedes, Río Quinto, 15 Nov. 1940, *Arturo Burkart 10913* (Darwinion); Río Segundo, Puerta de Vélez, approx. 15 km W from Pilar (at the river bank), 1 Nov. 1949, *Krapovickas 6478* (LIL). **Catamarca:** Andalgalá, La Ollada, 20 Feb. 1915, *Jorgensen 1314* (LIL); Andalgalá, 19 Feb. 1915, *Jorgensen 1488* (LIL). **San Luis:** Cerros Largos, 9 Nov. 1940, *Burkart 12108* (Darwinion).

Specimens of P. norvegica examined. SWEDEN. Stockholm, Skandull, 3 July 1927, *Fagerlind s.n.* (LIL-236822); Södermanland, östra Vingaker parish, Forssa bruck, 8 July 1906, *Lindgren s.n.* (LIL-253479).

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